REMARKS

I. Status of Claims

Applicants appreciate the Office's indication that claims 96, 113, and 162-165, previously withdrawn, can be included in the claims under examination.

Claims 84-85, 88-89, and 141 were cancelled previously.

Without prejudice or disclaimer, claims 86 has been cancelled herein, and claims 80-81, 87, 99-101, 104-107, 110-119, 122-125, 128-130, 134-140, 159, 161-163, 166, and 176 have been amended. Support for those amendments can be found either in the original claims or in the specification.

Claims 80-83, 87, 90-140, and 142-165 are pending and subject to examination upon entry of this paper.

II. Claim Rejections - 35 USC § 112 (2nd Paragraph)

Claim 159 is rejected under 35 U.S.C. §112, second paragraph, as allegedly being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Office Action at 4-5. Specifically, the Office indicates that the limitation "...weight of active material, by weight of the polymer" recited in claim 159 lacks antecedent basis with respect to the phrase "active material" and it is also not clear what the active material of the polymer is. Applicants respectfully disagree.

Applicants note that claim 159 now recites:

> The liquid cosmetic composition according to Claim 158, wherein the liquid cosmetic composition comprises from 10% to 40% ~~by weight of active material,~~ by weight of the at least one non-elastomeric film-forming linear block ethylenic polymer relative to the total weight of the composition.

Applicants believe there is support for the interpretation that "active material" is the at least one non-elastomeric film-forming linear block ethylenic polymer itself. For example, the specification as originally filed describes the composition as comprising "from 0.1% to 60% by weight of active material (or solids). . . and more preferably from 1% to 40% by weight, of block polymer". *See* lines 20-24 at page 48. The cascading nature of the percentage ranges makes it clear to a skilled artisan that "active material" and "block polymer" are interchangeable. Moreover, that interchangeability is also supported by Examples 1-7, each discussing experimental procedures for preparing a block polymer in solution. *See* specification as files at pages 37-45. For example, Example 1 uses the language "containing 40% polymer active material" to describe the final polymer solution.

As such, claim 159 as amended is clear and definite. Applicants respectfully request that the rejection be withdrawn.

III. Double Patenting

The Office maintains the double patenting rejections made in the previous Office Action. In an attempt to advance prosecution of this application, Applicants submit herewith Terminal Disclaimers rendering this rejection moot. Applicants respectfully request entry of the Terminal Disclaimers and withdrawal of this rejection.

IV. Claim Rejections - 35 USC § 103

A. Over Mougin in view of Frechet and Melchiors

Claims 80-82, 86, 87, 90, 93, 103, 104, 144, 145, 160, and 161 and newly examined claims 162-165 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Mougin (U.S. Application Publication No. 2002/0115780) in view of

Frechet (U.S. Patent No. 6,663,855) and Melchiors (U.S. Patent No. 6,531,535) for reasons as set forth at pages 12-18 of the Office Action. Applicants respectfully disagree and traverse.

The instant claims, as amended, recite, *inter alia*, a linear block polymer having "a polydispersity index of greater than 2.5" and comprising "a first block and a second block with different glass transition temperatures (Tg) linked together via an intermediate segment comprising at least one constituent monomer of the a first block and at least one constituent monomer of the second block, wherein the at least one constituent monomer of the first block differs from the at least one constituent monomer of the second block, the intermediate segment is a random copolymer block with a Tg that ranges from the glass transition temperature of the first block to the glass transition temperature of the second block".

Mougin

Mougin describes "the cosmetic use of block ethylenic copolymers of elastic nature comprising at least one rigid block having a glass transition temperature (Tg) of greater than or equal to 20° C. and at least one flexible block having a glass transition temperature (Tg) which is less than 20° C". See Abstract. However, Mougin does not expressly or implicitly teach an intermediate segment to link such rigid and flexible blocks, let alone the random block as currently claimed, as amended.

Contrary to the Office's statement made in note 7, *see* Office Action at page 16, the "diblock configuration" (...ABABABAB...) hypothesized by the Office either does not fall within the current claim scope, or lacks support. If "..." stands for "ABAB", that configuration is a polyblock, and should not be construed as a diblock connected by the

underlined segment. If the Office intends the first "..." to stand for "AAA" and the second "...", "BBB", Mougin, however, provides no support for the resulting polymer (AAAABABABABBBB).

Further, while Mougin describes that the block ethylenic copolymers may be chosen from a diblock AB, a triblock ABA or BAB, and polyblock copolymers of formula (AB)n,B(AB)n or (AB)nA, Mougin emphasizes that "[i]n the present invention, it is most particularly preferred to use triblock copolymers of structure ABA". *See* paragraphs [0041] - [0044]. Indeed, Mougin only describes the preparation of a triblock, wherein both As are identical blocks. *See* Example 2, at page 6.

Mougin's "particularly preferred" triblock copolymers are also distinguished from the currently recited block polymers, as amended. For example, the intermediate block of triblock ABA, e.g., B, has a Tg of less than 20°C, linking two polymers which both have Tgs of greater than or equal to 20° C, *see* paragraph [0044]. In other words, Mougin's intermediate block has a Tg of less than that of either of the two blocks linked together by the intermediate block. In contrast, the currently recited intermediate block, as amended, has a Tg "that ranges from the glass transition temperature of the first block to the glass transition temperature of the second block". In other words, the currently recited intermediate block, as amended, has a Tg less than one of the adjacent blocks but greater than that of the other adjacent block.

In addition, Mougin describes the block polymer as having a low polydispersity index, and the only exemplary block as having a polydispersity of 2.21. *See* Example 2. As such, Mougin does not teach or suggest a polydispersity index as currently claimed.

In sum, Mougin does not teach or suggest the intermediate segment as currently claimed, as amended. Moreover, Mougin does not teach or suggest a polydispersity index as currently claimed.

Frechet

Frechet describes "a cosmetic or personal care composition comprising a thermoplastic elastomer which is a block copolymer comprising a core polymer having a backbone comprising at least a proportion of C-C bonds and two or more flanking polymers". *See* col. 2, lines 55-59. Frechet also describes that "the core polymer may be linear or star-shaped". *See* col. 3, line 53. Frechet further teaches that "Tg of the flanking polymers will be higher than that of the core polymer", *see* col. 4, lines 35-36. Thus, in triblock ABA copolymers, which are the "preferred polymers for use in the present invention", *see* col. 10, lines 13-14, the intermediate block B has a Tg of less than that of the two blocks(A) linked together by B, wherein the flanking polymer A most preferably has a Tg from 30 to 150 °C, and the core polymer B most preferably has a Tg from -75 to 30 °C. *See* col. 4, lines 21-30. Frechet's copolymer thus does not rectify the deficiencies of Mougin's "particularly preferred" triblock.

The Office appears to rely on Frechet for the teaching of a random block that can be put between the core block and the flanking block. Frechet generally describes that the block polymers may have an architecture such as A-R-B-A or A-R-B-R-A, wherein R is a random block of monomers A and B or B and C or more monomers. However, Frechet is silent on the Tg of R, and further does not describe how to make such kinds of block polymers. Indeed, Frechet only describes how to make ABA triblock polymers, wherein both As are identical polymers. *See* Examples 1-60. Thus, the intermediate

block B which has a Tg of less than that of A, does not have a Tg greater than one of the adjacent blocks but less than that of the other adjacent block, as currently recited, as amended.

Frechet is silent on polydispersity index, and thus does not teach or suggest the polydispersity index as currently claimed.

In sum, similar to Mougin, Frechet does not teaches or suggests the intermediate segment or the polydispersity index, as currently claimed, as amended.

Melchiors

Melchiors describes a copolymer P for the use in coating composition, wherein the ratio M_w/M_n (e.g. polydiapersity index) varies from 2.5 to 4.0, and preferably from 3.0 to 4.0. *See* lines 5-7, col. 6. Melchiors does not rectify the deficiencies of Mougin and/or Frechet.

First, Melchiors does not discuss whether the copolymer P can be a block polymer. Further, Melchiors does not teach or suggest the claimed random intermediate segment. Moreover, the copolymer P is defined by a process, and is a mixture of copolymers which differ from each other by comprising different sets of monomers, *see* lines 15-22, col. 6, as opposed to a block polymer comprising same set of monomers as currently claimed. While Melchiors describes a polydispersity index from 2.5 to 4.0, that description is within the context of the copolymer P, which again is not a block polymer as currently claimed. Thus, Melchiors does not motivate a skilled artisan to incorporate a property of polydispersity index of greater than 2.5 into a block polymer.

On the other hand, in support of combining Melchiors' teaching of polydispersity index, the Office states that

> Melchiors discloses copolymer compostions with the object of providing coating compositions with high resistance to solvents, water, and environmental influences with very good optical properties (gloss) and mechanical properties (hardness flexibility), which can be applied in a wide range of fields (paragraph [0013], and [0037]). Melchiors teaches that polydispersity values of 2.9-3.5 are acceptable to achieve the objects of the invention Table 1. Office Action at 15, note 5.

However, Melchiors does not discuss or appreciate the effect of polydispersity on the properties of the polymer, as the results of Table 1 and Table 2 of Melchiors show that the relationship between polydispersity index and those desired objects cannot be reasonably predicted. For example, the comparison examples 13 and 14 in Table 2 prepared by a process not disclosed by Melchiors, but with the polydispersity index (3.2) within the range of the one as disclosed by Melchiors, display, for example, either significantly lower solvent resistance, or are unsuitable for storage, when compared with Melchiors' polymers. *See* col. 17, lines 60-67, and col. 18, lines 1-2. Further, Table 1 indicates that the comparison examples 5 and 8 display very different properties in terms of both viscosity drift, polydispersity index, and resistance to water, etc. Comparison examples 5 and 8 used polymer examples 6 and 9, respectively, wherein both polymer examples 6 and 9 contain the same component monomers, but were prepared by different processes. It is thus clear to one of ordinary skill that the structure of a polymer, and hence the properties thereof, depend on not only the component monomers, but also the requisite process used to prepare the polymer; and that the incorporation of the polydispersity index as described by Melchiors, and of some monomers as taught by Mougin and Frechet would yield unpredictable results.

As such, those three references, either alone or in combination, do not render obvious the current claims, as amended. This rejection is thus improper and should be withdrawn.

B. Over Anton in view of Kantner, Frechet, and Melchiors

Claims 80-83, 86, 87, 90-140, and 142-165 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over Anton (U.S. Patent No. 6,153,206) in view of Kantner (U.S. Application Publication No. 2002/0076390), Frechet (U.S. Patent No. 6,663,855), and Melchiors (U.S. Patent No. 6,531,535) for reasons as set forth at pages 18-31 of the Office Action. Applicants respectfully disagree and traverse.

Anton describes a polymer comprising a first repeat unit (first monomer) and a second repeat unit (second monomer). The Office appears to equate the term "repeat unit" with the term "block" as indicated by note 11 at page 19 of the Office Action. That equation is, however, incorrect because the term "repeat unit" means "monomer unit", e.g., a monomer. *See* Anton at col. 3, lines 21-24. In other words, Anton describes monomer components suitable for the polymer, not any particular structure for the polymer.

Although Anton discloses that the polymer may be a block copolymer, Anton does not expressly discuss any particulars regarding the nature of the block copolymer, let alone the currently claimed block polymers. As such, any information regarding block polymers can only be inferred from the listed examples.

While some of the copolymers listed in the table in col. 4, for example, the copolymers in line 50, IIIIIIIIBBBBB, and line 58, IIIIIIIBBBBBBMMMMMM, can be considered as linear block polymers, those linear block polymers differ from the instantly

claimed block polymers. For example, the intermediate segment of the claimed block polymers is a random copolymer, whereas the intermediate segment of Anton's block polymers either is nonexistent (for IIIIIIIBBBBB) or is a homopolymer BBBBB (for IIIIIIBBBBBBMMMMMM). One may argue that IIBB can be considered as the intermediate block for IIIIIIBBBBB (by definition, IIIIIBBBB is a diblock with no intermediate block), but IIBB still is not a random block. Webster's II New College Dictionary defines "random" as "having no specific pattern, purpose, organization or structure". Random block means that in a polymer chain monomers (for example, I and B) may follow in any order. *See* example of "Random polymer" at line 60, in the table of col. 4, Anton. It is thus clear to one skilled artisan that "IIBB" is not random because there is a recognizable pattern in this block: one end comprises one kind of monomer, the other end comprises another kind of monomer. (This also responds to the Office's invitation to "explain precisely how -IIBB-, and -BBMM- do not qualify as random copolymers that meet the instant claim limitations." Office Action at page 31)

Furthermore, though describing that the monomer suitable for the first repeat unit is chosen from those, that **if** polymerized, would yield a polymer with Tg varying from -10 to 75°C, and that the monomer suitable for second repeat unit, with Tg varying from 76 to 120 °C, *see* Abstract, Anton does not expressly discuss the Tg for any blocks, if any, because as indicated above "repeat unit" does not mean "block", it means a monomer. Moreover, the language "**if** polymerized, would yield a **polymer** with Tg varying from -10 to 75°C" is used to define the monomer not the **block**, when reading within the context. (This also responds to the Office's argument made in the last paragraph, at page 31 of the Office Action)

Indeed, all of the blocks of Anton's block polymers as listed in the table in col. 4 have a glass transition temperature of over 40 °C. For example, the block polymers in line 50, IIIIIIIIBBBBBB and line 58, IIIIIIIIBBBBBBMMMMM are derived from repeat units (for example, I, B, and M), when each polymerized to form a homopolymer block, having a glass transition temperature above 40 °C (53°C, 105 °C, and 105°C for blocks IIIIII, BBBBBB, and MMMMM, respectively). In contrast, at most only one of the at least one first block and the at least one second block of the instantly claimed block polymer has a glass transition temperature of over 40 °C.

In addition, Applicants respectfully disagree with the Office's position stated in note 26 at page 27 of the Office Action. The Office alleges that "Anton teaches a variety of monomers useful for the various polymer blocks of the polymer (col. 3, line 56 to col. 4, line 27; second table in col. 5)." As indicated above, Anton teaches monomers suitable for the first and second repeat unit, e.g., first and second monomers, not for the first and second blocks. Except for the information that may be inferred from a couple of block polymers listed in the table in col. 4, which information also falls outside the current claimed scope, Anton does not teach any particulars regarding any blocks in any block polymers.

As such, Anton differs from the current claims as amended in, for example, that Anton does not teach or suggest the currently recited Tg ranges of the blocks; and Anton does not teach or suggest the intermediate segment is a random block, let alone the random block as currently recited, as amended. Further, as noted by the Office, Anton is silent on polydispersity index, and thus does not teach or suggest the

polydispersity index as currently recited. Therefore, Anton has deficiencies similar to those that Mougin has.

As indicated in the previous response, Kantner does not rectify any of Anton's deficiencies. Kantner teaches a copolymer "comprising (i) about 10 to 85 weight percent of (meth)acrylate ester of C4 to C18 straight and/or branched chain alkyl alcohol, (conveniently labeled as a first monomer), (ii) from about 10 to 70 weight percent of (meth)acrylate ester of a saturated or unsaturated cyclic alcohol containing 6 to 20 carbon atoms (conveniently labeled as a second monomer)". Thus, similar to Anton, Kantner teaches copolymers comprising two kinds of monomers, *See* paragraphs [0010] and [0015]. Unlike Anton, Kantner does not disclose that those polymers may be block polymers. Kantner is also silent on polydispersity index. Thus, Kantner does not motivate a skilled artisan to arrive at any block polymers, and certainly does not teach or suggest the block polymer as recited in claims 80 and 81, as amended.

In addition, paragraphs [0017] and [0018] of Kantner suggest that isobutyl acrylate and isobornyl (meth)acrylate could be the first **monomer** and the second **monomer**, respectively, for the making of a copolymer. Kantner does not teach or suggest isobutyl acrylate forms **one block** and isobornyl (meth)acrylate, **the other block**. Thus contrary to the Examiner's assertion, Kantner does not teach "that isobornyl (meth)acrylate...is a suitable polymer for one **block** and that isobutyl acrylate...is a suitable polymer for the other **block**". (Emphasis added). *See* note 14 at page 20 of the Office Action.

Both Frechet and Melchiors have been discussed in the previous section. Neither of them rectify the deficiencies of Anton and/or Kantner.

Also for the same reasons as presented at pages 31-32, it is Applicants' position that the incorporation of the polydispersity index as described by Melchiors, and of some monomers as taught by Anton, Kantner, and Frechet would yield unpredictable results.

Thus, for the foregoing reasons, those four references, taken alone or in combination, do not render obvious the current claims, as amended. Applicants respectfully submit that this obviousness rejection is improper and should be withdrawn.

V. Claim Rejections - 35 U.S.C. 112 (1st Paragraph)

Claims 80-83, 86, 87, 90-140, and 142-165 are rejected under 35 U.S.C. §112, first paragraph, as allegedly failing to comply with the written description requirement. Office Action at 32-33. Specifically, the Office contends that there is no support for the element "wherein the at least one constituent monomer of the at least one first block differs from the at least one constituent monomer of the at least one second block" recited in claim 80, and for the polymer in the specific percentage ranges in claims 158 and 159. Applicants respectfully disagree.

Regarding claim 80, Applicants would like to point the Office's attention to the eight examples of block polymers discussed at pages 34-37 of the specification as filed. In each of the eight examples, the intermediate segment comprises at least one constituent monomer from the first block (methyl methacrylate and acrylic acid, for example, in the first example) and at least one constituent monomer from the second block (methyl acrylate, for example, in the first example), wherein the at least one

constituent monomer from the first block differ from the at least one constituent monomer from the second block (methyl methacrylate and acrylic acid differ from methyl acrylate, for example). Thus, the written description requirement is satisfied with respect to the element of claim 80 in question.

Regarding the polymer percentage as recited in claims 158 and 159, as discussed in previous section, claims 158 and 159 as amended is definite and properly supported by the language used in the specification. Composition Examples 8-13 further support claims 158 and 159 as amended. For example, Example 8 indicates that the block polymer itself of Example 2 is present in an amount of less than or equal to 45.35% (90.7% x 50% = 45.35%, wherein 50% is the weight percentage of block polymer itself in Example 2) by weight relative to the whole weight of the composition in each of the composition, which is within the claimed range.

Applicants accordingly request that the rejections be withdrawn.

Conclusion

In view of the foregoing amendments and remarks, Applicants respectfully request reconsideration and reexamination of this application and the timely allowance of the pending claims.

Please grant any extensions of time required to enter this response and charge any additional required fees to our Deposit Account No. 06-0916.

Respectfully submitted,

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